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On June 1, 2004

TOWNSEND and TOWNSEND and CREW LLP

By: Monique M. Butler *My Butler*

AF 1763
PATENT
Attorney Docket No.: AM2119/T21300
TTC No.: 16301M-021300

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of:

Karl Littau et al.

Application No.: 08/893,917

Filed: July 11, 1997

For: REMOTE PLASMA CLEANING
SOURCE HAVING REDUCED
REACTIVITY WITH A SUBSTRATE
PROCESSING CHAMBER

Examiner: Rudy Zervigon

Art Unit: 1763

APPELLANT'S SUPPLEMENTAL REPLY
BRIEF UNDER 37 CFR § 1.193 (b)(1)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Examiner's Supplemental Answer mailed on April 1, 2004 pursuant to the Remand to the Examiner by the Board of Patent Appeals and Interferences on February 25, 2004, Applicants respectfully request the Board of Patent Appeals and Interferences to consider the following remarks. This Supplemental Reply is submitted in triplicate, and is believed to be proper pursuant to 37 CFR § 1.193(b)(1).

A. Rejection of claims 8-15 as anticipated by Moslehi

Applicants respectfully submit that Moslehi does not disclose means for forming a nonplasma diluent gas flow; and means, in fluid communication with said means for forming a flow of said reactive radicals and with said means for forming a diluent gas flow, for mixing said

flow of said reactive radicals and said diluent gas flow downstream of said means for forming a plasma and anterior to said chamber to form a gas-radical mixture.

Moslehi discloses "injecting a remote plasma stream of H₂, Ar/He (or other inert gas such as He or Xe), or an H₂+Ar/He mixture." Column 11, lines 37-39. This is a plasma flow of inert gas, not a nonplasma diluent gas flow.

A separate nonplasma manifold 22 is provided for introducing nonplasma gases into the chamber. "Referring to FIG/ 1, the digermane is introduced into process chamber 14 through chamber 14 through nonplasma manifold 22." The mixing of the nonplasma digermane flow and the plasma flow of inert gas occurs inside the chamber.

For at least the foregoing reasons, claims 8-15 are novel over Moslehi.

B. Rejection of claims 16-20 as unpatentable over Moslehi in view of Stevens

In remanding the application with respect to the rejection of claims 16-20 under 35 U.S.C. § 103(a) as being unpatentable over Moslehi in view of Stevens, the Board notes that the Examiner "does not provide reasons of why one skilled in the art would have incorporated the parts of Stevens' apparatus into the apparatus of Moslehi, nor how one skilled in the art would do so." The Examiner simply concludes that the reason for incorporation of the parts is "a common practice in the art." The Board states that "the examiner has overlooked the basic principle that there must have been something present in the teachings to suggest to one skilled in the art that the claimed invention would have been obvious." The Board further notes that "the examiner has overlooked the basic principle that obviousness under § 103 is a legal conclusion based upon facts revealing the scope and content of prior art, the differences between prior art and the claims at issue, the level of ordinary skill in the art, and objective evidence of nonobviousness." Therefore, the Board remanded the application with respect to the rejection of claims 16-20 "for a proper analysis in this regard." Decision at page 9.

In the Supplemental Examiner's Answer, the Examiner does not offer the proper analysis required by the Board, but merely states: "It is the examiner's position that a person of ordinary skill in the art at the time the invention was made would have found it obvious to modify the Moslehi microwave source by introducing Stevens et al.'s microwave arrester. The Stevens et al. microwave arrester is a common practice in the art limiting the extent of microwave radiation permeation to the volume of gas intended for discharge as taught by

Stevens (column 5, lines 24-38; column 6, lines 44-57) in order to provide for efficient power delivery and uniformity to the plasma volume (column 9, lines 9-12; column 3, lines 19-35)." Essentially, the Examiner maintains the assertion that it is a common practice in the art, with no explanation as to why one skilled in the art would incorporate the parts of Stevens' apparatus into the apparatus of Moslehi, or how it would do so.

The Examiner has engaged in the impermissible use of hindsight reconstruction of the claimed invention, since there is no motivation to combine the references without the benefit of hindsight. Federal Circuit "case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references." *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999) (citations omitted). To guard against the tempting trap of hindsight, the evidence of a suggestion, teaching, or motivation to combine "must be clear and particular." *Dembiczak*, 50 U.S.P.Q.2d at 1617 (citation omitted). "Broad conclusory statements regarding the teaching of multiple references, standing alone, are not evidence." *Id.* (citations omitted). "Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight." *Id.* (citing *Interconnect Planning Corp. v. Feil*, 227 U.S.P.Q. 543, 551 (Fed. Cir. 1985)).

In addition, Stevens et al. does not disclose the microwave arrestors as claimed. Stevens et al. discloses a dummy load 46 connected to a magic-T 38, as shown in Fig. 2, "so that any reflected power returning back from the first and second arms will return into the dummy load 46 or be reflected back to the microwave source 30" (col. 5, lines 32-36). In contrast, independent claim 16 recites an applicator having an input aperture and an output aperture, each of which is equipped with microwave arrestors. As discussed in the specification at page 22, lines 2-7, the microwave arrestors are provided at the input aperture and the output aperture to prevent egression of the microwave plasma from volume 406 of the plasma applicator 402, and are preferably comprised of grids, or metal plates having a plurality of throughways. There is no teaching as to how the dummy load 46 in Stevens et al. can be incorporated into the apparatus of Moslehi to provide microwave arrestors at input and output apertures, as recited in claim 16. Therefore, even if combined, Moslehi and Stevens do not render claims 16-20 unpatentable.

For at least the foregoing reasons, Applicants respectfully submit that claim 16 and claims 17-20 depending therefrom are patentable, and respectfully request that the rejection of these claims be reversed.

Applicants respectfully urge the Board to consider the references as a whole. In so doing, Applicants believe the Board will find that the rejections have no merit.

X. CONCLUSION:

In view of the foregoing, Applicants respectfully submit that the claims are in condition for allowance, and respectfully request that the rejections of these claims be reversed.

Respectfully submitted,



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